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PREVENTION OF MIXED DISEASES (Pasteurellosis and diplococcosis) THAT OCCUR IN YOUNG ANIMALS

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ABSTRACT

This article discusses the formation of immunity against two diseases and the effectiveness of disease prevention in a single application of a vaccine developed against pasteurellosis and diplococcosis in lambs. Therefore, it is advisable to vaccinate sheep and lambs with this vaccine 3 ml the first time and 2 ml the second time under the skin.

Keywords: Veterinary, microbiology, bacteriology, antigen, antibody, strain, vaccine, pasteurellosis, diplococcosis.

1. INTRODUCTION

Life itself requires the development of personal helpers, farmers and farms, which are also becoming the mainstay of livestock production. Resolution of the President of the Republic of Uzbekistan dated June 1, 2017 No PP-3026 "On measures to organize the activities of the State Veterinary Committee of the Republic of Uzbekistan" and the special role of agriculture in the economy of the Republic and the development of this sector. Resolutions No. PP-4254 of March 28, 2019 "On the organization of the State Committee for Veterinary and Livestock Development of the Republic of Uzbekistan" and other legal acts in this area will serve to some extent in the implementation of the tasks set out in the regulations.

The development and efficiency of animal husbandry, which is the main branch of agriculture, depends on factors such as increasing the number of livestock in public, farm and private farms, increasing their productivity, having a healthy child, proper care, protection against various diseases. Bacterial infections of young cattle hinder the rapid development of animal husbandry. Infectious diseases such as pasteurellosis and diplococcosis, which occur among young animals, cause great economic damage, and are an important problem in animal husbandry. The lack of effective biological and chemical drugs in the veterinary field further complicates the problem and leads to a wider spread of infectious diseases.

The spread of infectious pasteurellosis and diplococcosis among farm animals, especially young cattle, further complicates the problems facing veterinary science and practice. This is because pasteurellosis and diplococcosis cause very complex changes in young calves and lambs. Studying the effectiveness of a vaccine designed to prevent this disease is one of the current issues. It is also more difficult to diagnose the disease, pathological examinations of slaughtered or dead animals reveal disease-specific signs and changes in their appearance and internal organs. This, in turn, poses serious difficulties in making an accurate diagnosis of the disease.

Given the high number of deaths from pasteurellosis and the large amount of money spent on measures to combat it, foreign scientists have now developed vaccines and hyperimmune blood serums against pasteurellosis in calves, lambs and piglets. To date, no biopreparations for the prevention and treatment of pasteurellosis and diplococcosis have been produced in the country. However, the use of manufactured vaccines is applied to each disease separately. The vaccine, based on the results of our research, "Vaccine of sheep and lambs associated with pasteurellosis and diplococcosis" is vaccinated once and prevents both diseases at the same time, the duration of immunity was 12 months.

Development of high-performance import-substituting biopreparations for the prevention of pasteurellosis and diplococcosis in sheep and lambs using local resources in the country and determination of optimal doses of its use. The vaccine against foreign-made pasteurellosis and diplococcosis is imported and the immunity lasts up to 6 months. The immunogenicity of the vaccine, created from strains of local pasteurella and diplococci, was 12 months in experiments in lambs. Twelve months after the local vaccine was given, the pathogens protected the infected lambs from infection.

Among sheep and lambs, the number of animals infected with pasteurellosis and diplococcosis is 60-65%, and the mortality rate among them is 25-30%. Large sums of money are spent on the treatment of sick animals and disease control measures. Animals that recover from the disease lag behind in growth and development and become carriers of pasteurella. The production of low-dose vaccines to prevent and treat this disease is one of the current challenges.

Changing conditions of nature, violation of veterinary-sanitary rules lead to the outbreak of infectious diseases. Lack of proteins, carbohydrates, fats, macro-micro elements in the diet of young cattle is also one of the main causes of infectious diseases.

The lack of biological and biochemical drugs in the veterinary service system exacerbates the problem and leads to a wider spread of infectious diseases.

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2. MATERIALS AND METHODS

Based on the above problems, a polyvalent experimental GOA formol vaccine against pasteurellosis and diplococcosis was developed in the Microbiology Laboratory of the Veterinary Research Institute using cultures of local diplococci and pasteurella strains to prevent pasteurellosis and diplococcosis in lambs. The quality of the prepared vaccine was tested in the laboratory.

To determine sterility, the vaccine sample is inoculated into GPB, GPA, 5% serum GPB, 5% serum GPA, Suslo agar, Kitt-Tarotstsi nutrient media. Planted nutrient media were stored at 37 ° C and 28 ° C in a thermostat for 10 days. It was noted that the culture media in which the vaccine samples were inoculated were sterile.

Pasteurellosis is an infectious bacterial disease of farm animals. In the acute phase of the disease, septicemia, and in the semi-acute and chronic stages, the symptoms of lung damage are more pronounced. On the development of biopreparations against pasteurellosis and issues of immunity, J.M. Parmanov (2001), L.Ya. Stavtseva and others (2003).

Diplococcosis is an infectious bacterial disease of agriculture and wildlife. The disease is accompanied by inflammation of the lungs, sepsis, arthritis, inflammation of the intestines, injuries of the lymphatic system. Among lambs, the mortality rate of animals infected with diplococcosis is 20-25%. Infected animals lag behind in growth and development and are considered carriers of diplococci (Sitdikov AK, Burlutsky ID 1990, Makhmatkulov MA, Ibadullaev FI, Elmurodov BA 2001, Abdjalimov SH, Elmurodov B.A. 2008). I.I. Arkhangelsky prepared a liquid formol vaccine from two serotype diplococcosis strains. The experimental series of the vaccine has been tested in white mice in rabbits and calves and has yielded positive results. E.G. In his research, Mamatsev studied the immunogenicity properties of the diplococcal formula vaccine in white mice and rabbits after infecting pathogenic diplococci and obtained a positive result. However, this vaccine has not been tested in adult animals.

The GOA formol vaccine against pasteurellosis was developed and introduced by VITI (Parmanov JM, Parmanov MP, Elmurodov BA, S.Kh. Abdalimov 1999).

3. RESEARCH RESULT

The duration of immunity of the vaccine against diplococcosis developed abroad is up to 4 months. For the first time in the country (Elmurodov B.A., Makhmatkulov M., Abdalimov S.H.) vaccine based on local strains and raw materials maintains immunity for up to 6 months. The biologically controlled vaccine was tested in 12 sheep under laboratory conditions. The sheep were divided into 4 groups of 3 heads. The first group was vaccinated subcutaneously in an amount of 3 ml with an associated vaccine against pasteurellosis and diplococcosis. Six months after vaccination, the sung was infested with LD100 (25 billion m.t.) of pasteurellosis and diplococcosis pathogens (Table 1).

Table 1. Results of a 6–12-month efficacy study of the GOA formol vaccine against lamb pasteurellosis and diplococcosis.

	Name of	Number of	Vaccine	Vaccinatio	Injury (after 6 months)		The result
	groups	animals	dose	n method	Quantity	Method	
		(head)					
1	I	3	3 ml	Under the	25 billion	Abdomina	Tirik
	experience			skin	m.t.	1 cavity	
	(6 months)						
2	Control	3	-	-	25 billion	Abdomina	3 heads
					m.t.	1 cavity	died
3	II	3	3 ml	Under the	25 billion	Abdomina	Tirik
	experience			skin	m.t.	1 cavity	
	(12						
	months)						
4		3	-		25 billion	Abdomina	3 heads
					m.t.	1 cavity	died

The third group was also vaccinated with the associated vaccine against pasteurellosis and diplococcosis. The vaccine was injected subcutaneously in a volume of 3 ml. Twelve months after vaccination, he was infected with LD_{100} (25 billion m.t) of pasteurellosis and diplococcosis pathogens. The second group was the control group and no vaccinations were given. They were infected after 12 months with an amount of LD_{100} (25 billion m.t.) of pasteurellosis and diplococcosis pathogens.

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The fourth group was the control group and they did not receive an experimental series of experimental vaccines against pasteurellosis and diplococcosis. They were infected after 12 months with an amount of LD_{100} (25 billion m.t.) of pasteurellosis and diplococcosis pathogens. In summary, vaccinated eyes retain immunity for 6 to 12 months after infection, while control eyes die when infected. Because the control lambs were not vaccinated.

4. CONCLUSION

As a result of our research, the laboratory for the study of young cattle diseases of the Uzbek Veterinary Research Institute developed an experimental GOA farmol vaccine against pasteurellosis and diplococcosis, using local cultures to prevent pasteurellosis and diplococcosis in sheep and lambs. As a result, the effectiveness of this vaccine was found to be high. As a result of 3 ml of subcutaneous vaccination in sheep, it was found that the immune response to sung at 12 months was high and the effectiveness of the vaccine was proven to be high.

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